REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-5, 7-15, 17-18, 21-22, and 26-29 are currently active in the case. Claims 6, 16, 19-20, and 23-25 were cancelled by previous amendments. In the present Request for Reconsideration, none of the claims are amended.

In the March 18, 2010 Office Action, Claims 1-4, 7, 10-14, 17-18, 21-22 and 24 were rejected under 35 U.S.C. § 103(a) as being anticipated by Muratani (U.S. Patent Application Publication No. 2006/0023913, now U.S. Patent No. 7,099,493) in view of Cox et al. (U.S. Patent No. 5,915,027, hereinafter "Cox"). Claims 5, 15, and 26-29 were indicated as allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter in the March 18, 2010 Office Action. However, because Applicants believe that independent Claims 1, 11, 17, and 21, from which dependent Claims 5, 15 and 26-29 depend, respectively, include allowable subject matter, Claims 5, 15 and 26-29 are maintained in dependent form a present time.

Applicants again note that Muratani's U.S. Patent Application Publication No. 2006/0023913, that was used in the last Office Action, is not prior art against the present application, but only the parent application is, U.S. Patent No. 6,983,059 and the corresponding U.S. Patent Application Publication No. 2002/0116618 that was published on August 22, 2002. In the following remarks, Applicants will refer to this earlier publication, in a spirit of moving the prosecution of this case forward. Applicants also respectfully request correction of this formal issue.

In response to the rejection of Claim 1 under 35 U.S.C. § 103(a), Applicants respectfully request reconsideration of this rejection and traverse the rejection, as discussed next.

Briefly summarizing, Applicants' independent Claim 1 is directed to a data processing apparatus operable to identify a code word present in a marked version of a material item, the material item composed of a plurality of units and the code word composed of a plurality of parts, each part including different data from the code word, the marked version formed by combining each of the plurality of parts of the code word with one of the plurality of units. The apparatus includes *inter alia* a correlator operable to generate for the marked material item a dependent correlation value by correlating the partial code word with a corresponding partial stored code word that is a part of a whole stored code word, and each time the information quantity of the partial code word is increased, the correlator is operable to generate a dependent correlation value by correlating the partial code word *having increased information quantity with a corresponding partial stored code word*, the iterative increasing of the information quantity of the partial code word continuing until the whole code word is recovered by the recovery processor, and correlated with the whole stored code word by the correlator, or the predetermined threshold exceeded.

In other words, as discussed in the specification at page 15, lines 18-27, and shown in his Figure 8, the features of Applicants' independent Claim 1 allows to iteratively increase the length of the recovered code word in response to a correlation result on a conditional basis, because the correlation is tested before each iterative increase in length of the recovered code word.

More specifically, in a case a threshold correlation value of a part of the whole code word is not met, another code word part can be added to the previously recovered one, thereby using a partial code word having more information than the one previously used.

This subsequent recovered code word is then again correlated with the correlator, and if the correlation value of the partial code word having an increased size in not met again, another code word part is added to the recovered code word. This iteration is continued until either the whole code word is recovered, or the dependent correlation value is met. This allows to reduce the processing, in particularly in a case where the whole code word can be easily identified, without having to extract data for the whole code word from the marked material item.

For example, as shown in Applicants' Figure 4, in hierarchical level HL1, the dependent correlation values are calculated from an individual image or frame 0, 1, 2, etc. At hierarchical level HL2, two successive images are taken into account (i.e. 0 and 1), and at hierarchical level HL3, four successive image are taken into account (i.e. 0, 1, 2, and 3.) Please note that the above discussion related to Applicants' Claim 1 is citing examples of embodiments are provided for explanatory purposes only and should not be construed or used to limit the scope of the claims in any fashion.

Turning now to the applied references, the reference Muratani is directed to a digital watermark detecting device 2 for detecting watermarks in a sequence of images, having a sequence seed generator 21 generate a sequence seed of a watermark which is to be detected, and a detector 23 having a shift circuit 231 to shift the image data. (Muratani, Abstract, Figs. 10-11, ¶¶ [0097], [0100]). Muratani explains that his detecting device 2 can detect the watermark even if the original, un-watermarked content is not available. (Muratani, ¶ [0047]). To achieve this goal, Muratani takes advantage of the fact that the watermark correlated with the un-watermarked content can be approximated by the watermark correlated with a shifted version of the same data amount of the watermarked content, providing that the shift is small enough. (See Muratani, ¶¶ [0043]-[0046], Fig. 12, steps S12, S14.) On this basis, Muratani suggests to detect the presence or absence of a watermark, by determining whether or not a value corresponding to

the correlation of the watermarked content with the watermark therein is greater than a value corresponding to the correlation of the watermarked correlated with a shifted version of the watermarked content. (See Muratani, ¶¶ [0046], [0099]-[0104].) In Muratani, a "shifted version" means for example a lateral and horizontal coordinate shift of image data. (Muratani, ¶ [0101].)

However, Muratani fails to teach all the features of Applicants' independent Claim 1. In particular, Muratani fails to teach at least the following features:

> when the dependent correlation value does not exceed the predetermined threshold, the correlator is operable to iteratively increase a number of parts of the partial code word used, to increase information quantity of the recovered partial code word.

(Claim 1, portions omitted.) This is also confirmed by the pending Office Action. (Office Action, p. 4, ll. 3-6). However, the Office Action believes that this features can be found in the reference Cox at column 9, lines 21-60, and also asserts that the combination of Muratani with Cox is proper. (Office Action, p. 4, ll. 6-19.) Applicants respectfully disagree with these contentions, as next discussed.

Cox describes a watermarking scheme in which a watermark is segmented into a number of "subwatermarks," each of which is inserted into a different blocks of an image. (Cox, Abstract, col. 5, ll. 14-24.) When the watermark is recovered from the image, *all* of the subwatermarks are extracted from each image block, and the original watermark is reconstructed and then tested against predefined watermarks to identify a correlation. (Cox, col. 3, ll. 29-35, col. 7, ll. 59-63.). This method of Cox is shown in more detail in his Figure 4. In this figure, Cox shows how the watermarked data is first segmented by a segmenter 40, then combined by a combiner 42 to reconstruct the watermark. (Cox, from col. 5, l. 65, to col. 6, l. 10.) The watermark is then segmented again by the signal segmenter 43 and each subwatermark is individually identified by a watermark identifier 44a, 44b, 44i, etc. (Cox,

col. 6, ll. 10-18, Fig. 4.) The identified subwatermarks are then combined by a symbol combiner 45 and the watermark is extracted. (Cox, col. 6, ll. 18-24.)

However, Cox fails to teach the feature that if "the dependent correlation value does not exceed the predetermined threshold, the correlator is operable to iteratively increase a number of parts of the partial code word used, to increase information quantity of the recovered partial code word," as required by Applicants' independent Claim 1. The pending Office Action generally asserted that this feature is obvious in light of the teachings of Cox, and gave the following reasons for this:

> ... correlating the single watermark with predetermined sequences, and extracting a sequence of most likely current symbols corresponding to the watermark. Cox teaches that doing so in the matter allows the process to be computed incrementally. Examiner views this process to be analogous to applicant's claimed "iterative increase a number of parts of the partial code word used, to increase information quantity of the partial code word."

(March 18, 2010 Office Action, p. 4, ll. 11-16.) However, Applicants disagree with this analogy, because at no point does Cox teach or suggest that the reconstruction of the watermark from the subwatermarks occurs (i) *iteratively by increasing a number of parts*, and (ii) *the iteration based on a correlation threshold*. Indeed, as is clear from Cox's Figure 4, the extracted watermark signal cannot be extracted until every subwatermark has been identified by the watermark identifiers. (See also Cox, col. 7, ll. 59-63, "the watermarks extracted from ***each*** 8x8 block are first added together," emphasis added, and col. 6, ll. 3-14.)

Moreover, it also appears that column 9, lines 21 to 60 of Cox does not teach anything related to an iterative increase in a number of parts of the partial code word based on a condition, but instead refers to the averaging of each of the different blocks of the image to remove the spectral shaping added during watermark insertion. (Cox, col. 7, ll. 1-14, see also col. 6, ll. 7-10.)

Therefore, even if the combination of Muratani and Cox is assumed to be proper, the cited passages of the combination fails to teach every element of Applicants' Claim 1. Accordingly, Applicants respectfully traverse, and request reconsideration of this rejection based on these references.

Independent Claims 11, 17 and 21 recite features analogous to the features recited in independent Claim 1, but directed to different statutory classes and having different scope, with Claim 11 directed to a method, Claim 17 directed to an encoding data processing apparatus, and Claim 21 directed to a system for identifying versions of a material item. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the rejections of Claims 11, 17 and 21, and all associated dependent claims, are also believed to be overcome in view of the arguments regarding independent Claim 1.

Consequently, in view of the present Request for Reconsideration, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-5, 7-15, 17-18, 21-22, 24 and 26-29 is earnestly solicited.

Should the Examiner continue to disagree with the above distinctions, Applicants respectfully request that the Examiner provide an explanation via Advisory Action pursuant to M.P.E.P. § 714.13 specifically rebutting the points raised herein for purposes of facilitating the continued prosecution or an appeal process.

Consequently, in view of the present Request for Reconsideration, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-5, 7-15, 17-18, 21-22, and 26-29 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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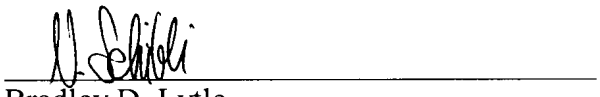

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